

4.2 VISUAL RESOURCES

This section discusses the potential effects on visual resources in the vicinity of the Tucson Electric Power Company (TEP) Sahuarita-Nogales Transmission Line proposed project. The methodology for determining impacts is presented, along with a description of the impacts for each alternative. The terminology and concepts used for the proposed project's potential impacts on national forest, Bureau of Land Management (BLM), state, and private land are consistent with the U.S. Department of Agriculture Forest Service (USFS) Scenery Management System (SMS), as described in Section 3.2. The potential impacts for the Coronado National Forest and lands outside of the Coronado National Forest including BLM land are discussed separately, concluding with a summary of visual impacts. Unless otherwise noted, Figure 3.1–1 identifies locations on the Coronado National Forest, and Figure 1.1–4 identifies locations outside the Coronado National Forest.

Methodology

The following project-level SMS steps have been taken for evaluation of visual impacts of the proposed project on the Coronado National Forest. The same steps were taken for evaluation of visual impacts outside of the Coronado National Forest, including Federal lands managed by BLM, except for those items related to scenic classes (for example, in step 2 below), which have not been established for lands outside the national forest system.

1. Description of the physical changes associated with the proposed project, such as transmission line support structures, access roads, conductor wires, clearing required for the right-of-way (ROW), and substations. This description is supported by photo simulations selected to represent what the alternatives would look like from the most likely viewing areas. For the project on national forest land, the most likely viewing areas are Concern Level 1 (primary) and Concern Level 2 (secondary) travelways, and recreational use areas, determined in consultation with USFS. For the project on private and BLM lands, the most likely viewing areas are from residences and major roads (Interstate-19 [I-19]) in nearby towns such as Sahuarita, Green Valley, Amado, and Tubac. The photo simulations portray the range of visual impacts, from wide-open views of the project in the foreground, to partially blocked views of the project, to background views of the project where it is difficult to detect in the landscape. Two maps for each corridor (on and off the national forest land) depicting the project visibility from travelways and use areas, based on site visits and elevation mapping software, provide a key to understanding the visibility of the project and the location of each photo simulation.
2. Project-level verification of the Scenic Class ratings presented in Figure 3.2–4. The Scenic Class ratings were originally determined by USFS on a Coronado National Forest-wide scale, then verified through field visits to the proposed project area. The Scenic Attractiveness and Concern Level 1 and 2 viewsheds were also verified. The most significant impacts of a proposed project are where the project contrasts with a landscape in an area where scenic resources are relatively important (for example, in Scenic Class 1 or 2 Areas).
3. Evaluation of how the Scenic Integrity would change if the proposed project were implemented, including the potential impacts from proposed access roads and support towers.
4. Discussion of short-term construction impacts, and proposed short-term and long-term visual mitigation measures and the expected effectiveness of these mitigation measures.

Physical Changes Associated with the Proposed Project

Long-term impacts to visual resources from the proposed project would occur from the introduction of transmission line support structures, access roads, transmission line wires, and clearing required for the ROW. TEP anticipates that a majority of the structures would be self-weathering steel single poles (monopoles), depicted in Figure 1.1-1, with a low reflectance steel material that self-oxidizes, or rusts, to form a reddish-brown protective surface coating, similar in appearance to wood poles of other electrical lines. TEP would use dulled, galvanized steel lattice structures (Figure 1.1-2) in locations where their use would minimize environmental impacts (including visual), in accordance with Arizona Corporation Commission (ACC) Decision No. 64356.

From a visual impact perspective, the primary advantage of monopoles over lattice towers is that monopoles require very little ongoing maintenance following construction, which would allow the obliteration and revegetation of all but a few critical access roads. Another disadvantage of the lattice towers is that self-weathering steel is not an option, as the joints on lattice towers could collect moisture that would interfere with the protective coating that prevents corrosion. Galvanized or painted finishes can be used on lattice towers to darken and reduce shine, but the galvanizing process shortens the life of the finish and painted towers require more access for ongoing maintenance. On the other hand, the primary advantage of lattice towers is that under certain conditions they tend to blend better into the background when viewed from a distance against mountains or vegetation. Also, lattice towers can be spaced farther apart thus requiring fewer towers, although the overall height and breadth of the lattice towers would be greater for increased span lengths.

Because the photo simulations have shown the importance of minimizing access roads to mitigate visual impacts, the advantage of the monopoles in requiring fewer access roads has made them the preferred support structure option of TEP (and USFS on national forest land) for the proposed project in terms of minimizing visual impacts. The recommendation from USFS for monopoles on national forest lands is given provided that all non-critical access roads (see Section 4.12, Transportation) are obliterated and revegetated following construction. An additional consideration that favors monopoles is that they create less contrast with the natural environment in the foreground when viewed against the sky, such as at road crossings, compared to the very urban, structural look of lattice towers.

The proposed project would utilize conductors (transmission line wires) with a non-specular (not shiny) surface. Non-specular conductors are dipped in an acid bath that takes the shine off the conductors, reducing their visibility. The typical height of the structures would be 140 ft (43 m). The span length between structures would range from 600 to 1,200 ft (183 to 366 m). The support structures would create vertical lines in the landscape, much more pronounced for monopoles than for lattice towers, and the conductors would create horizontal lines that would be visible depending on viewing distance and lighting conditions. Structures located so that viewers would see land or vegetation (such as a mountain) behind the structure rather than sky (that is, skylined) would create less of a visual impact. The text box on the following page describes preparation of the photo simulations to accurately depict the project visibility.

Access roads, which would require a clearing of vegetation and potential reshaping of land contours, would introduce a light-colored linear feature into the landscape. Access roads are most visible during the summer months when monsoon rains turn the landscape green, creating a strong contrast with the light-colored roadways. A number of the photo simulations in this Environmental Impact Statement (EIS) were taken in August, thus depicting a worst-case scenario (most visible) for the access roads.

Preparation of the Photo Simulations

Computer Aided Design (CAD) equipment and Global Positioning Systems (GPS) were used to prepare photo simulations. This allows life-size modeling and ensures a high degree of visual accuracy in the photo simulation. This translates to using real world scale and coordinates (that is, what the viewer would see if they were looking at the view from the location of the camera) to locate facilities, other site data, and the actual camera locations corresponding to three dimensional (3-D) simulation viewpoints. The degree of accuracy of the CAD equipment is absolute; the accuracy for the GPS location data is to within approximately 3.3 ft (1 m).

A CAD site map was imported as a background reference. Microstation CAD drawings of proposed structures and conductors were placed on top of the site map to register and orient the correct locations of photo simulation viewpoints. The 3-D model of the proposed structures and conductors was generated in real world scale. The GPS camera positioning information was then referenced to the 3-D data set.

A 35-mm camera with a 50-mm lens was used consistently throughout the process, with a matching electronic camera lens to allow for viewing of the computer-generated model in the same way that the proposed project would be viewed in the field.

Next, the photographic negative was scanned into the 3-D database and loaded as an environment within which the view of the 3-D model is generated. To generate the correct view relative to the actual photograph, the electronic camera was placed at a location (within the computer) identical to where the photograph was taken. This was supported by the GPS location. Then, the 3-D wire frame model was displayed so that proper alignment, scale, angle, and distance could be verified.

When all lines of the wire frame model exactly matched the photograph, the camera target position was confirmed. To complete this phase, the sun angle was set, materials and textures were applied, and the composite image was rendered through a computer image process known as Ray Tracing. Any additional filters required for appropriate atmospheric conditions, such as blur, focus, and haze were applied at this time.

The photo simulations developed for this project were designed to be viewed 14 in (36 cm) from the viewer's eye. This distance portrays the most realistic life-size image from the location of the simulations viewpoints.

It should be noted that an infinite number of variations related to camera angle, viewer location, distance, and atmospheric conditions exist. The simulations developed for this project incorporated additional mitigating factors such as structure color, structure placements, and use of non-specular (not shiny) conductors. Variations in mitigation measures applied to the simulations, when coupled with camera angle, viewer location, and atmospheric conditions can exponentially increase the variations of even "typical" viewing conditions. The simulations developed for this project captured a variety of viewing conditions under different atmospheric conditions. Dependent on the angle of the sun and viewer, cloud cover, backdroping available, type of facility simulated, and distance from the project, the facility features (such as conductors, cross arms, roads, etc.) may be more or less visible within each simulation (URS 2003b).

4.2.1 Western Corridor

Coronado National Forest. A key factor in evaluating the visual impacts of the Western Corridor is the visibility of the proposed support towers and access roads from travelways and recreation areas utilized by the public, and the distance zone in which the proposed project would be visible. The terrain of the area provides wide-open views of the Western Corridor in some areas, while partially or completely blocking views of the Western Corridor in other areas. Figure 4.2–1 shows the visibility of the Western Corridor on the Coronado National Forest from Concern Level 1 and 2 travelways, with each travelway shaded as follows: red for wide-open views of the Western Corridor; blue for partially-blocked, intermittent views of the Western Corridor; and green where the Western Corridor is not visible from the travelway. The following is a discussion of the project visibility as depicted in Figure 4.2–1, illustrated by photo simulations from the locations indicated.

The Concern Level 1 travelways on or nearby national forest lands are Ruby Road, Arivaca Road, and I-19. The Western Corridor would not be visible from an estimated 48 mi (77 km) of Concern Level 1 roads (sections shaded green, including all of I-19). There would be partially-blocked, intermittent views of the Western Corridor from approximately 5 mi (8 km) of Concern Level 1 travelways (shaded in blue), and there would be wide-open views of the Western Corridor from approximately 9.0 mi (15 km) of Concern Level 1 travelways (shaded in red).

Peña Blanca Lake Recreation Area is Concern Level 1, based on its popularity for recreation. As shown in Figure 4.2–1, the proposed project would not be visible from the lakeshore. Visual Simulation 1 (All Visual Simulations are located at the end of Section 4.2 [URS 2002]) shows that the Western Corridor would be difficult to see from Upper Thumb Picnic Area overlooking Peña Blanca Lake. The view from Upper Thumb Picnic Area represents the worst-case view of the proposed project from Peña Blanca Lake Recreation Area. In this view, the proposed project would be in the middleground to background and would not be skylined.

A typical view from Ruby Road west of the Calabasas Group Area (east of Peña Blanca Lake) is depicted in Visual Simulation 2, in which the proposed project is visible in the foreground, partially shielded by terrain and set against the backdrop of a mountain. The most visible portion of the Western Corridor would be along Ruby Road west of Peña Blanca Lake, especially in an estimated 4-mi (6-km) stretch along Ruby Road, where the project would be highly visible in the immediate foreground. This worst-case visibility from Ruby Road is depicted in Visual Simulation 3. This alignment was developed by TEP in coordination with USFS as a means of protecting the viewshed from Ruby Road looking south towards the Pajarita Wilderness. While siting the transmission line immediately adjacent to Ruby Road in this segment has a maximum visual impact along Ruby Road, it protects the viewshed to the south for the public (including photographers) and eliminates the need for highly visible access roads in this portion of the project area. Visual Simulation 4 depicts the view of Castle Rock looking southeast from Ruby Road. The Western Corridor is partially visible in the middleground, screened by topography. Both the typical and worst-case scenarios from Ruby Road depicted in these simulations are within Scenic Class 1 Areas, which have high public value as described in Section 3.2.

The other wide-open view of the Western Corridor would be where it crosses Ruby Road, as depicted in Visual Simulation 5. After crossing Ruby Road, the Western Corridor continues north along the west side of the Tumacacori Mountains, extending through the foreground, middleground, and background distance zones to viewers on Ruby Road, as shown in Visual Simulation 6, depicting monopoles with minimum access roads that would be required for this type of structure. For comparison purposes, Visual Simulation 7 shows the same view as in Visual Simulation 6, but with lattice towers and the access roads that would be required for lattice towers.

The remaining views of the Western Corridor from Concern Level 1 roads would be partially obscured views of the project from Ruby Road, and views of the proposed project on national forest land in the background distance zone from Arivaca Road. (See the next subsection, Outside of the Coronado National Forest, which describes the impact of the proposed project as it crosses overhead of Arivaca Road, not on national forest land). By siting proposed pole locations in areas of lower elevation between ridgetops, the visibility of the Western Corridor from Ruby Road east of Peña Blanca Lake is reduced to several locations with open views of the area. Visual Simulation 8 shows an example of terrain and vegetation shielding looking towards the Calabasas Group Area from Ruby Road (east of Peña Blanca Lake), showing the side profile of a viewer, a proposed structure location, and a hill between the viewer and the structure.

The Concern Level 2 travelways in the proposed project are secondary travelways that intersect either Ruby Road, Arivaca Road, or I-19, and receive a moderate amount of use. As shown in Figure 4.2–1, the Western Corridor would be visible from the segments of Concern Level 2 travelways highlighted in red (approximately 14 mi [22 km]), would be partially blocked from the segments highlighted in blue (7.5 mi [12 km]), and would not be visible from the segments highlighted in green (39 mi [63 km]). The Western Corridor crosses five Concern Level 2 roads and would dominate views in the foreground at each of these crossings. The Western Corridor would be visible from portions of the road leading to the Pajarita Wilderness, but would be mostly obscured by terrain from the Pajarita Wilderness, and specifically from Sycamore Canyon. The project would be also highly visible from higher elevations on trails leading to Atascosa Lookout.

The existing Scenic Integrity of the Tumacacori Ecosystem Management Area (EMA) is depicted in Figure 3.2–5. Construction of the proposed project within the Western Corridor would reduce the Scenic Integrity of a 1.0-mi (1.6-km) wide strip of land along the length of the Western Corridor within the Tumacacori EMA, as depicted in Figure 4.2–2. The portion of the Western Corridor west of the Tumacacori Mountains would change from Very High to a combination of Moderate, Low, and Very Low, depending on the amount of access roads selected and the proximity to Concern Level 2 roads where the proposed project would be in the foreground. Where the Western Corridor crosses and remains south of Ruby Road, the Scenic Integrity would change from High to Very Low. The Scenic Integrity of Peña Blanca Lake Recreation Area and Ruby Road to the east would not change, and the Scenic Integrity where the Western Corridor joins the El Paso Natural Gas Company (EPNG) pipeline and exits national forest land would change from Very High to Moderate. In terms of area, the Scenic Integrity of approximately 13,870 acres (5,613 ha) would be lowered from High or Very High to Moderate or Low, and 4,641 acres (1,878 ha) would be lowered from Very High to Very Low. The existing Scenic Integrity of the Pajarita Wilderness would not change. The reduced acreages of Scenic Integrity on the Coronado National Forest are presented in this EIS as one measure of visual impact. The USFS Scenery Management System (SMS) does not provide guidance on the significance of visual impacts. The lead and cooperating agencies will consider the information in this visual analysis in their issuance of a Record of Decision (ROD).

Mitigation of long-term visual impacts is ongoing in TEP's project development process. Mitigation includes the precise siting of the ROW at lower elevations between ridgetops, to the extent feasible, to avoid skylining of the structures. The project design process incorporates minimizing the mileage of construction access roads and maintenance roads needed following construction. Existing access roads or trails would be used where feasible, as described in the Section 4.12, Transportation. The type of structure to be used (monopoles or lattice towers) would be selected to minimize overall environmental impacts, including visual, biological, cultural, and other impacts, as determined by an outside party such as USFS in accordance with ACC Decision No. 64356.

These mitigation measures would lessen the overall visual impact of the project, but would not fully eliminate the visual impact. Mitigation measures would be least effective along Ruby Road west of Peña Blanca Lake, where the transmission line would be in the immediate foreground for travelers on Ruby Road. A previous alignment of the Western Corridor originally considered by TEP was to site the ROW an estimated 0.5 mi (0.8 km) south of Ruby Road, between the road and Pajarita Wilderness. For this alignment, the high vantage point of Ruby Road prevented siting the Western Corridor behind terrain features, and the additional impact of access roads in this area added significantly to the visual impacts. Thus, TEP worked in consultation with USFS to realign the Western Corridor immediately adjacent to Ruby Road, in order to minimize impacts to the pristine viewshed south towards the Pajarita Wilderness, and to minimize the need for new access roads to the structures. While the previous alignment would have kept the transmission line out of the immediate foreground of viewers on Ruby Road, the modified alignment along Ruby Road preserves the pristine viewshed of the Pajarita Wilderness (including opportunities for photography), and parallels an existing linear modification to the landscape (Ruby Road).

A short-term visual impact would be generated during construction from dust and equipment. Dust control measures such as watering of access roads would be implemented by TEP to minimize impacts, as discussed in Section 4.8, Air Quality Impacts. Access used for construction that would not be used for ongoing operation and maintenance would be restored to near pre-construction conditions (see Section 4.12, Transportation).

Outside of the Coronado National Forest. An estimated 35.5 mi (57.1 km) of the Western Corridor is outside of the Coronado National Forest. The landscape of the northern portion of the Western Corridor (common with the Central and Crossover Corridors), including 1.25 mi (2.01 km) of lands managed by BLM, is characterized by desert grasslands, a low density of residences and commercial establishments, multiple mine tailings piles and electrical transmission lines (refer to Figure 3.11–1 showing existing utilities). A key factor in evaluating the visual impacts in this area is the visibility of the proposed project from residences and travelways, and the distance zone in which the proposed project would be visible. The terrain of the area provides wide-open views of the proposed project in some areas, while partially or completely blocking views of the proposed project in other areas. Figure 4.2–3 shows the visibility of the Western and Crossover Corridors along I-19 and in the areas shaded around I-19 that contain the highest density of residences. The map is shaded to indicate the visibility of the Western and Crossover Corridors as follows: red for wide-open views; blue for partially-blocked, intermittent views; and green for areas from which the Western and Crossover Corridors are not visible. The following is a discussion of the project visibility as depicted in Figure 4.2–3, illustrated by photo simulations from the locations indicated.

As the Western Corridor crosses I-19 and continues southwest, residents, travelers, and recreationalists would have intermittent views of the proposed project in the foreground and middleground, with views from many areas in lower terrain obscured by the hills and mine tailings piles in the area. The views of the Western Corridor in Sahuarita, Nogales, and on BLM land, would be in areas already containing development. Visual Simulation 9 shows a foreground view of the proposed project from Mission Road adjacent to BLM land, with TEP's existing and proposed transmission lines. As the Western Corridor separates from the Central Corridor, the Western Corridor (together with the Crossover Corridor) would continue to be almost entirely obscured from view from I-19 by mine tailings piles and natural foothills, but would be visible in the foreground from Arivaca Road as it passes overhead. This worst-case foreground view of the Western (and Crossover) Corridor is depicted in Visual Simulation 10, and represents a point of maximum impact in this central portion of the project. Because the characteristic desertscrub vegetation in the project vicinity is low to the ground, this would result in the proposed project being maximally visible where not obscured by the terrain. However, the vegetation clearing required for the ROW and access roads would have a reduced impact in this type of relatively low

vegetation. Figure 4.2–4 shows a visual assessment of the entire project area strictly based on residential density and topography, with areas visible to higher numbers of residents indicated in pink.

Based on the human alterations to the natural landscape, such as utilities, multiple expansive mine tailings piles, and buildings in the northern portion of the Western Corridor, the existing Scenic Integrity of the landscape, including BLM land, is Moderate to Low (the mine tailings piles and transmission lines dominate some areas of the landscape). The Scenic Integrity of this area would not be lowered as result of the proposed project. In the vicinity of the Pima-Santa Cruz County line, the existing Scenic Integrity is High, and would change as a result of the Western Corridor to Moderate to Low, depending on the feasibility of siting the support structures in low terrain.

Mitigation measures and short-term visual impacts would be as described above for the Western Corridor on national forest land. In relatively flat landscapes such as the BLM land, it is not possible to site towers between ridgetops to minimize their visibility. However, structure type would be selected as described above.

4.2.2 Central Corridor

Coronado National Forest. A key factor in evaluating the visual impacts of the Central Corridor is the visibility of the proposed support towers and access roads from travelways and recreation areas utilized by the public, and the distance zone in which the proposed project would be visible. The terrain of the area provides wide-open views of the Central Corridor in some areas, while blocking views of the Central Corridor in other areas. Figure 4.2–5 shows the visibility of the Central Corridor from Concern Level 1 and 2 travelways, with each travelway shaded as follows: red for wide-open views of the Central Corridor; blue for partially-blocked, intermittent views of the Central Corridor; and green where the Central Corridor is not visible from the travelway. The following is a discussion of the project visibility as depicted in Figure 4.2–5, illustrated by photo simulations from the locations indicated.

The Concern Level 1 travelways on or nearby national forest lands are Ruby Road, Arivaca Road, and I-19. The Central Corridor would not be visible from approximately 56 mi (90 km) of Concern Level 1 travelways (sections shaded green, including most of Ruby Road). There would be partially-blocked, intermittent views of the Central Corridor from approximately 3.0 mi (4.8 km) of Concern Level 1 travelways (shaded in blue), and there would be wide-open views of the Central Corridor from approximately 3.0 mi (4.8 km) of Concern Level 1 travelways (shaded in red).

The primary Concern Level 1 travelway from which the Central Corridor on national forest land would be visible is Ruby Road where it is crossed by the Central Corridor. The Central Corridor is visible in the foreground as it crosses Ruby Road, within a Scenic Class 1 area. Given that the towers at this location are skylined and in the foreground for viewers on Ruby Road as shown in Visual Simulation 11, monopoles are currently recommended at this location by USFS as they create less of a contrast with the natural environment in this setting. For comparison purposes, Visual Simulation 12 depicts the same location with lattice towers. Because ridges follow both sides of Ruby Road at the crossing point, the transmission line would disappear over the ridges to either side rather than extending into the middleground. Although views of the Central Corridor on the national forest land from Arivaca Road would be in the background distance zone, refer to the next subsection, outside of the Coronado National Forest, which describes the impact of the proposed project as it crosses overhead of Arivaca Road, not on national forest land. The Central Corridor is not visible from Peña Blanca Lake Recreation Area, Calabasas Group Area, or White Rock Campground, all located along Ruby Road west of the crossing of the Central Corridor.

The Concern Level 2 travelways from which portions of the Central Corridor would be visible are roads connecting to Ruby Road and I-19, as shown in Figure 4.2–5. The Central Corridor would be visible from the segments of Concern Level 2 travelways highlighted in red (approximately 13 mi [21 km]), would be partially blocked from the segments highlighted in blue (9.8 mi [16 km]), and would not be visible from the segments highlighted in green (37 mi [60 km]). A number of Concern Level 2 roads, such as Rock Corral Canyon (Figure 3.7–2), extend into the foothills and provide intermittent open vantage points of the Central Corridor. From more elevated viewpoints, segments of the Central Corridor are evident in foreground, middleground, and background where it crosses the tops of ridges and foothills, all within a Scenic Class 2 area. San Cayetano Elementary School at Peck Canyon and I-19 is also a Concern Level 2 area, with views of the Central Corridor in the background as shown in Visual Simulation 13.

The existing Scenic Integrity of the Tumacacori EMA is depicted in Figure 3.2–5. Construction of the proposed project within the Central Corridor would reduce the Scenic Integrity of a 1-mi (1.6-km) wide strip of land along the length of the Central Corridor within the Tumacacori EMA, as depicted in Figure 4.2–6. The Scenic Integrity in the viewshed east of the Tumacacori Mountains would change from Very High to a combination of Moderate and Low, with Low Scenic Integrity where the Central Corridor crosses Concern Level 2 roads in the foreground. Where the Central Corridor crosses Ruby Road, the Scenic Integrity would change from High to Very Low, and south of this crossing the Scenic Integrity would change from Very High to Moderate. In terms of area, the Scenic Integrity of an estimated 8,992 acres (3,639 ha) would be lowered from Very High to Moderate or Low, and 676 acres (274 ha) would be lowered from High to Very Low at the Ruby Road crossing. The existing Scenic Integrity of Peña Blanca Lake Recreation Area and the Pajarita Wilderness would not change.

Short-term construction impacts, and proposed short-term and long-term visual mitigation measures for the Central Corridor would be the same as described for the Western Corridor in Section 4.2.1.

Outside of the Coronado National Forest. Approximately 42 mi (68 km) of the Central Corridor is outside of the Coronado National Forest. The landscape of the northern portion of the Central Corridor (common with the Western and Crossover Corridors), including 1.25 mi (2.01 km) of land managed by BLM, is characterized primarily by desert grasslands, a low density of residences and commercial establishments, multiple mine tailings piles and electrical transmission lines. For discussion and simulation of this common portion of the Central Corridor, refer to Section 4.2.1, Western Corridor.

The Central Corridor parallels I-19 within approximately 1.0 mi (1.6 km) near Amado, Tubac, and Tumacacori, passing adjacent to areas of low intensity residential development, before entering the national forest land. Figure 4.2–7 shows the visibility of the Central Corridor along I-19 and in the areas shaded around I-19 that contain the highest density of residences. The map is shaded to indicate the visibility of the Central Corridor as follows: red for wide-open views; blue for partially-blocked, intermittent views; and green for areas from which the Central Corridor is not visible. The following is a discussion of the project visibility as depicted in Figure 4.2–7, illustrated by photo simulations from the locations indicated.

Upon separating from the Western Corridor, the Central Corridor would be intermittently visible and blocked by the elevated terrain that runs directly along the west side of I-19, with some open views from nearby residences in Amado, Tubac, and Tumacacori depending on the terrain setting of each individual house. The Central Corridor would be visible in the foreground from Arivaca Road as it passes overhead. This worst-case foreground view of the Central Corridor is depicted in Visual Simulation 14.

Northwest of Tubac, at the Burro Inn, the Central Corridor would be visible in the foreground, partially with a partial backdrop of mountains given the terrain of the area, as shown in Visual Simulation 15. As

the Central Corridor passes near Tubac, it would be mostly screened by topography from the Barrio de Tubac subdivision on the east side of I-19, as shown by Visual Simulation 16. The worst-case view of the Central Corridor from residences would occur in Tubac near Piedra Drive. To mitigate the visual impacts to the extent practicable in this location (and for the entire length of the project), TEP considered different pole types and finishes, as shown in Visual Simulation 17. This simulation shows that the lattice towers have an overbearing structural look when viewed against the sky such as would be the case for nearby residents. The monopoles introduce a simpler, narrower change to the landscape in a color similar to wooden utility poles that better blends with the surrounding environment. Thus, the self-weathering steel monopoles in Visual Simulation 17 was selected by TEP to minimize visual impacts for residential locations such as this one in Tubac.

Because the characteristic desert grassland vegetation in the project vicinity is low to the ground, the proposed project would be maximally visible where not obscured by the terrain. However, the vegetation clearing required for the ROW and access roads would have a reduced impact in this type of relatively low vegetation. Figure 4.2-4 shows a visual assessment of the entire project area strictly based on residential density and topography, with areas visible to higher numbers of residents indicated in pink.

Given the human alterations to the natural landscape such as utilities, multiple expansive mine tailings piles, and buildings in the northern portion of the Central Corridor, the existing Scenic Integrity of the landscape, including BLM land, is Moderate to Low (the mine tailings piles and transmission lines dominate some areas of the landscape). Upon separating from the Western Corridor, the Scenic Integrity is Moderate, as the landscape appears slightly altered due to residences, commercial establishments, and roads in the area connecting with I-19. The Scenic Integrity of the vicinity of the Central Corridor outside of the national forest land would not change as a result of construction of the Central Corridor.

Mitigation measures and short-term visual impacts would be as described above for the Central Corridor on national forest land. In relatively flat landscapes such as the BLM land, it is not possible to site towers between ridgetops to minimize their visibility. However, structure type would be selected as described above.

4.2.3 Crossover Corridor

Coronado National Forest. A key factor in evaluating the visual impacts of the Crossover Corridor is the visibility of the proposed support towers and access roads from travelways and recreation areas utilized by the public, and the distance zone in which the proposed project would be visible. The terrain of the area provides wide-open views of the Crossover Corridor in some areas, while blocking views of the Crossover Corridor in other areas. Figure 4.2-8 shows the visibility of the Crossover Corridor from Concern Level 1 and 2 travelways, with each travelway shaded as follows: red for wide-open views of the Crossover Corridor; blue for partially-blocked, intermittent views of the Crossover Corridor; and green where the Crossover Corridor is not visible from the travelway. The following is a discussion of the project visibility as depicted in Figure 4.2-8, as illustrated by the photo simulations from the locations indicated.

The Concern Level 1 travelways on or nearby national forest lands are Ruby Road, Arivaca Road, and I-19. The Crossover Corridor would not be visible from approximately 75 mi (120 km) of Concern Level 1 travelways (sections shaded green, including most of Ruby Road). There would be partially-blocked, intermittent views of the Crossover Corridor from approximately 40 mi (65 km) of Concern Level 1 travelways (shaded in blue), and there would be wide-open views of the Crossover Corridor from approximately 7.9 mi (13 km) of Concern Level 1 travelways (shaded in red).

The Concern Level 1 roads from which portions of the Crossover Corridor on the national forest land would be visible are Ruby Road, I-19, and Arivaca Road, as shown in Figure 4.2–8 by the road segments highlighted in red. The Crossover Corridor would be visible in two locations from Ruby Road: (1) along the west side of the Tumacacori Mountains where the Crossover Corridor turns east into Peck Canyon, the Crossover Corridor would be visible in the far middleground, set against mountains rather than skylined, with partial shielding provided by the terrain, and (2) the Crossover Corridor would be visible in the foreground as it crosses Ruby Road, the same as depicted in Visual Simulations 11 and 12. The Crossover Corridor is not visible from Peña Blanca Lake Recreation Area. From Arivaca Road, views of the Crossover Corridor on national forest land would be in the background distance zone (but refer to the next subsection outside of the Coronado National Forest, for the impact of the proposed project as it crosses overhead of Arivaca Road, not on national Forest land). From I-19, the Crossover Corridor would be just visible from Peck Canyon, in the same view as the Central Corridor shown in Visual Simulation 13, set against the backdrop of the Tumacacori Mountains and foothills. This view of the Crossover Corridor from I-19 is in a Scenic Class 2 area.

The Concern Level 2 travelways from which portions of the Crossover Corridor would be visible are roads connecting to Ruby Road and I-19, as shown in Figure 4.2–8. The Crossover Corridor would be visible from the segments of Concern Level 2 travelways highlighted in red (approximately 13 mi [21 km]), would be partially blocked from the segments highlighted in blue (16 mi [26 km]), and would not be visible from the segments highlighted in green (20 mi [32 km]). A Concern Level 2 road connects Ruby Road to the west end of Peck Canyon, from which the Crossover Corridor would be in the foreground. A number of Concern Level 2 roads also extend into the foothills from I-19 and provide intermittent open vantage points of the Crossover Corridor. From more elevated viewpoints, segments of the Crossover Corridor are evident in foreground, middleground, and background where it crosses the tops of ridges and foothills, all within a Scenic Class 2 area. San Cayetano Elementary School at Peck Canyon and I-19 is also a Concern Level 2 area, with views of the Crossover Corridor in the background as shown in Visual Simulation 13. Within Peck Canyon, there are recreational trails as described in Section 3.1.2, Recreation, from which the Crossover Corridor would be in the foreground, though none of these have been identified as Concern Level 2 travelways.

The existing Scenic Integrity of the Tumacacori EMA is depicted in Figure 3.2–5. Construction of the proposed project within the Crossover Corridor would reduce the Scenic Integrity of a 1-mi (1.6-km) wide strip of land along the length of the Crossover Corridor within the Tumacacori EMA, as depicted in Figure 4.2–6. The Scenic Integrity in the viewshed east of the Tumacacori Mountains would change from the existing Very High to a combination of Moderate and Low, with Low Scenic Integrity where the Crossover Corridor crosses Concern Level 2 roads and would thus be in the foreground. Where the Crossover Corridor crosses Ruby Road, the Scenic Integrity would change from High to Very Low, and south of this crossing the Scenic Integrity would change from Very High to Moderate. In terms of area, the Scenic Integrity of an estimated 18,060 acres (7,307 ha) would be lowered from Very High to Moderate or Low, and 676 acres (274 ha) acres would be lowered from Very High to Very Low at the Ruby Road crossing. The existing Scenic Integrity of Peña Blanca Lake Recreation Area and the Pajarita Wilderness would not change.

Short-term construction impacts, and proposed short-term and long-term visual mitigation measures for the Crossover Corridor would be the same as described for the Western Corridor in Section 4.2.1.

Outside of the Coronado National Forest. An estimated 35.5 mi (57.1 km) of the Crossover Corridor is outside of the Coronado National Forest. The Crossover Corridor outside of national forest land is identical to the Western Corridor, and thus the impacts would be identical to the Western Corridor in this overlapping segment, as described in Section 4.2.1. Mitigation measures and short-term visual impacts would also be as described above for the Western Corridor on national forest land.

4.2.4 Summary of Visual Impacts

Coronado National Forest. The areas of land that would have reduced Scenic Integrity as a result of construction and operation of the proposed project for each action alternative are as shown in Table 4.2–1. As stated previously, the reduced acreages of Scenic Integrity on the Coronado National Forest are presented in this EIS as one measure of visual impact. The USFS SMS does not provide guidance on the significance of visual impacts. The lead and cooperating agencies will consider the information in this visual analysis in their issuance of a ROD.

From approximately 9.0 mi (14 km) of Concern Level 1 travelways (out of a total of 62 mi [99 km]) on and nearby the Tumacacori EMA, the Western Corridor would be in wide-open view on national forest lands. From approximately 3.0 mi (4.8 km) of Concern Level 1 travelways on and nearby the Tumacacori EMA, the Central and Crossover Corridors would each be in wide-open view on national forest lands.

Table 4.2–1. Summary of Reduced Scenic Integrity on the Coronado National Forest

Western Corridor		Central Corridor		Crossover Corridor	
Change	Acres	Change	Acres	Change	Acres
From Very High or High to Moderate or Low	13,870	From Very High to Moderate or Low	8,992	From Very High to Moderate or Low	18,060
From High to Very Low	4,641	From High to Very Low	676	From High to Very Low	676
Total Reduced Scenic Integrity:	18,511	Total Reduced Scenic Integrity:	9,668	Total Reduced Scenic Integrity:	18,736

The following text was provided by USFS (USFS 2002c). The Central Corridor would minimize the total mileage on national forest land resulting in reduced Scenic Integrity of an estimated 9,668 acres (3,912 ha) on national forest land. The Western and Crossover Corridors would have higher total mileage on national forest lands than the Central Corridor, and the Western and Crossover Corridors would result in an estimated 18,511 to 18,736 acres (7,491 to 7,582 ha) of reduced Scenic Integrity on national forest lands. Accordingly, the Western and Crossover Corridors would have greater overall visual impact on the Coronado National Forest than the Central Corridor.

Outside of the Coronado National Forest. The proposed project outside of the Coronado National Forest would cross an estimated 36 mi (51 km) of land for the Western and Crossover Corridors, and an estimated 42 mi (68 km) of land for the Central Corridor. With the exception of a reduction in Scenic Integrity associated with the Western and Crossover Corridors near the Pima and Santa Cruz County line, the existing Moderate to Low Scenic Integrity would not be reduced for the area crossed by each corridor outside of the Coronado National Forest, including the BLM land. The Central Corridor has the longest length outside of the Coronado National Forest, and would be intermittently visible to more residents than the other corridors given its closer proximity to the towns of Amado, Tubac, and Tumacacori.

4.2.5 No Action Alternative

Under the No Action Alternative, TEP would not build the proposed transmission line and associated facilities as proposed in this EIS. The existing landscape and Scenic Integrity, as described in Section 3.2, Visual Resources, would be expected to continue, subject to visual impacts from potential development in the project area (see Chapter 5, Cumulative Impacts).